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ABSTRACT

Supporting the contention that using experimental research designs will facilitate sound decisions about how to teach the composing process, this paper first describes briefly the range of research methods available for investigating the writing process. Next the paper discusses the advantages of conducting experimental research, some of which are that it (1) encourages careful planning, close attention to classroom procedures, and systematic evaluation; (2) is a better test of the effectiveness of teaching methods; and (3) promotes a clearer understanding of research methodology. Finally, the paper illustrates these advantages by summarizing a "true" experiment (one whose components are an hypothesis, assumptions, a research design, randomized subjects, a treatment, and a measurement procedure) to learn whether dictation/word processing systems required a composing process somewhat different from that of writing. (RL)

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ADVANTAGES OF RANDOMIZED EXPERIMENTS FOR RESEARCH IN COMPOSITION

Linda Flower and John Hayes have never conducted a protocol analysis on my composing process. But if they did, they'd learn just how essential water, cupboards, and basketball are for writing. You see, I do my best prewriting while standing in the shower; and when writing becomed tedious, I clean cupboards--a task I despise so much that I eagerly return to pen and paper; and once I've revised and retyped a page, I take great pleasure in wadding up the old one and banking my shot off the refrigerator, into the wastebasket. But of what use is this description of my composing process? Should I teach my students that cleanliness is next to godliness in hopes of improving their prewriting strategies? Probably not. What I am trying to illustrate by revealing my composing idiosyncrasies is that translating descriptive research directly into classroom practice may lead to some very unproductive teaching.

Descriptive research allows us to learn about the composing processes of individual writers and to formulate theories and models, but it provides limited direction for translating what we've learned about the composing process to teaching. Therefore, we need additional research methods to enable us to make sound pedagogical decisions. Experimental research designs provide such methods. To support this contention, I will first describe briefly the range of research methods available for investigating the composing process; then I will discuss the advantages of conducting experimental research; and finally I will illustrate these advantages by summarizing a true experiment recently conducted at Purdue University.

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First, let's review the kinds of research applicable to studying the composing process. There are two broad categories: descriptive studies and experimental methods. We conduct three main kinds of descriptive studies in composition: qualitative descriptive studies; quantitative, systematic descriptive studies; and prediction and classification studies.

We use qualitative descriptive studies, the first category, to investigate how writers compose. A variety of research methods can be used to structure careful observation. The case study approach used by Emig and by Sommers and the protocol analysis procedures used by Flower and Hayes are examples in this category.

We use quantitative, systematic descriptive studies, the second category, to develop methods for identifying and measuring characteristics of writing. Kellog Hunt's descriptive work on how T-unit length varies with syntactic maturity is an example of a quantitative systematic study.

We use prediction and classification studies, the third category, to forecast student performance or label students according to writing ability. Using test scores, grades, or writing samples, we employ prediction or classification methods to assign students to remedial, general, or advanced composition. Lately the bulk of our research in composition has been descriptive studies.

The second category of research we conduct is experimental. We use experimental research to gauge the effects our teaching methods have on student writing performance. Although a variety of experimental designs exist, I will focus on the kind called true experiments. Don't be misled by this nomenclature. It does not imply that descriptive studies and other experimental designs are false. Rather the design of a true experiment allows us to use simplier statistics and to make stronger cause and effect statements than we can use and make with other research designs. True experiments, such as the

research on sentence combining conducted by Frank O'Hare, have three requirements: (1) Randomized treatment and control groups for comparison. Randomization is a procedure whereby all students have an equal opportunity to be in either group. It allows us to assume that the groups do not differ initially except by chance. 2) A treatment. This might typically be special instruction for the treatment group; and 3) A method for measuring differences between the groups following the treatment. Measurement methods for composition may include holistic or analytical scoring of writing samples.

In their introduction to Research on Composing: Points of Departure, Charles Cooper and Lee Odell persuasively argue the fallacy of conducting experimental research to discover the best methods for teaching composition when we know so little about the composing process itself. Instead, they call for descriptive studies. While their argument is persuasive, it was made five years ago. Since then descriptive studies by Flower and Hayes, Kroll, Shaughnessy, Sommers, Stallard and numerous others have given us a wealth of information on how writers of different ages and abilities compose. What we must begin to do now, in an informed way, is apply our knowledge of the composing process to teaching. True experiments can provide a useful complement to descriptive research in composition.

Conducting true experiments has several advantages. I will discuss four. Conducting true experiments:

* increases our knowledge of related research in composition.
* encourages careful planning, close attention to classroom procedures, and systematic evaluation.
* allows us to better test the effects of our teaching methods.
* promotes a clearer understanding of research methodology.

First, let's consider how conducting true experiments increases our knowledge of related research in composition. We can do so by asking, "Where do the topics for experimental research and the methods for classroom treatments come from?" Topics emerge from thorough descriptive research. Alert teachers who are conducting and reading about descriptive studies begin to notice gaps or discrepancies between what they're observing and what's being taught in the classroom. For instance, one topic that's prominent in composition journals and books today is the relationship between speaking and writing. Our profession is divided on the usefulness of developing writing and speaking as complementary verbal abilities. On one hand, Emig, Sommers and others contrast writing with speaking. On the other hand, most of the authors in the 1981 NCTE publication Exploring Speaking-Writing Relationships: Connections and Contrasts, view speaking and writing as complementary activities intimately related in the development of thinking, learning, and the mastery of verbal performance. Such dissonance alerts us to suitable topics for experimental studies.

After carefully reviewing descriptive literature and formulating a tentative theory about how our findings might translate to teaching, we are ready to design an experimental study. To do so, we will return to the literature, this time to search for related experimental research. For example, if we were to continue investigating speaking/writing relationships, we would find two related experimental studies: Tovatt and Miller conducted an experiment testing their oral, aural, and visual pedagogy, and Radcliffe outlined an experimental design to test Zoellner's talk-write model. However, because true experiments are seldom conducted in composition, we can learn from any well-designed study how to administer our treatments, control extraneous classroom variables, and establish measurement procedures. Thus, conducting true experiments is bound

to increase our knowledge of related descriptive and experimental research in composition.

But it's not a matter of increasing knowledge for the sake of knowledge. Conducting true experiments encourages careful planning, close attention to classroom procedures, and systematic evaluation, a second advantage of experimental research. When designing an experiment, we judiciously decide what to teach and how. We prepare course materials, plan lessons, and maybe even alter our teaching style with a particular theory in mind. We establish in advance the criteria for measuring performance. Although these may also be routine activities in teaching, when we combine research and teaching, our work takes on an added dimension. We do more long-range, detailed planning; we take added care in designing materials and structuring classroom activities; we may even rehearse a class presentation. We also clearly define and justify our methods of evaluation. Overall, conducting true experiments makes us more mindful of our role as teachers and more attentive to the needs and responses of our students.

Careful planning and close attention to classroom procedures pay off by allowing us to better test the effects of our teaching methods, a third advantage of conducting true experiments. Because we randomize treatment and control groups and assume equality of groups at the beginning of a true experiment and because we carefully control the variables and apply a specific treatment during the experiment, we can attribute differences between the groups at the end of the experiment to the treatment. What this means is that we now have a better way to assess the effects of our teaching methods. Instead of saying, "I taught writing this way once and students wrote pretty good papers," we can more precisely define what "this way" means, more exactly describe what "pretty

good papers" are, and more confidently know that improvement is a result of our teaching, not the result of an overlooked variable such as student motivation.

Conducting true experiments also promotes a clearer understanding of research methods, a fourth advantage. The adage "learn by doing" is particularly germane to conducting true experiments. By studying the literature, selecting and narrowing a topic, formulating a tentative hypothesis, specifying treatments, establishing criteria for measurement, and actually planning and conducting a true experiment, we learn first hand the requirements of good experimental research and can more critically interpret the research of others.

I will now illustrate these advantages by summarizing a true experiment that Jeanne Halpern and I recently conducted at Purdue University. Our research began when we started noticing gaps between descriptive research in composition, real-world practice, and classroom teaching. In our reading, we found researchers who, like John Schafer*, believe that "a particular kind of oral language transference can help, not hurt writing." In our consulting in business and industry, we heard on-the-job writers who chose to dictate their communications express difficulties associated with speaking writing effectively. In addition, they often produced letters and memos with peculiar errors when dictating for word processing systems. And in our business writing classrooms, we realized our textbooks focused entirely on the more technical aspects of dictation such as using the equipment and speaking clearly. They ignored the composing strategies necessary for using the new systems. At this point we decided to conduct our own descriptive study to learn if dictation/word processing systems require a composing process somewhat different from that of writing. Using a case approach, we interviewed 28 dictators in business and industry to determine their dictation process. We then analyzed our findings and identified key differences between the processes of dictation and writing,

*John C. Schafer, "The Linguistic Analysis of Spoken and Written Texts," In Exploring Speaking-Writing Relationships: Connections and Contrasts, ed. Barry M. Kroll and Roberta J. Vann, Urbana, IL: NCTE, 1981, p. 31.

especially in the planning strategies. Thus in preparation for our true experiment we learned much about related research in composition. We studied the descriptive research of others on the composing process of writing and its relationship to speaking, and we investigated the composing process of dictators by conducting our own descriptive study.

Based on our exploratory research, we conducted a true experiment as follows. Our hypothesis was that students taught both the composing process and the technical process of dictation will produce significantly better dictated memos than those taught only the technical process. While this hypothesis may at first seem self-evident, it is based on two assumptions: 1) dictation requires adaptations in the composing process of writing, with much heavier emphasis on planning; and 2) students can learn to make these adaptations. Our design included four classes of business writing at Purdue University with two classes per time period. Two instructors, Jeanne and I participated, each teaching one treatment and one control group. We randomly assigned our subjects, eighty-four business writing students to either a treatment or a control group. We gave the treatment group four hours of training in the composing process of dictation, emphasizing planning. During the same time period, we reviewed with the control group the rhetorical context of the composing process, emphasizing writer, message, and audience. In one hour, we taught both groups the more technical aspects of dictation and gave them time to practice using the equipment, speaking clearly, and addressing the transcriber. To measure the effects of our instruction, we examined students' performance on a dictated assignment as rated holistically by trained graders using rubrics we had developed. In summary, the components of a true experiment are an hypothesis, assumptions, a research design, randomized subjects, a treatment, and measurement procedure.

What did we gain by designing and conducting the true experiment? About planning, we learned how to design materials and structure group activities to illustrate the composing process of dictation. About teaching, we learned how to help students adapt their familiar writing process to an unfamiliar dictation process. And about evaluating, we learned how to clearly articulate the features of a good communication as we wrote the rubrics and trained graders in holistic scoring. As a result of our efforts, we have a well-planned unit on dictation from lessons to assignments to evaluation that we can teach with confidence.

The reason we're confident that our unit on dictation teaches students effective strategies for composing dictated communications is that the true experiment allowed us to compare groups and test our findings. After trained graders scored the memos, we statistically compared the scores of the treatment and control groups and learned that the treatment group dictated significantly better memos. That learning to dictate is an important skill for college graduates is confirmed by the rapid conversion to dictation/word processing systems in business, industry, and government. That learning composing strategies for dictation is essential to developing dictating skill is confirmed in our research.

For Jeanne and me, conducting a true experiment gave us a clearer understanding of research methodology than we could ever have gained by reading the reports of others. And as a result of this experience, we are better able to critically judge descriptive and experimental research in composition.

I'd now like to summarize the advantages of conducting true experiments in composition. To do so, I'd like for you to consider your response to this excerpt from a memo dictated by a student in our experiment.

> Applicant 1 Applicant 1, shows no work experiences of any type. He was a high school drop out, and has only held a job for as long as

> three months at a time. He admitted he hated manual labor and admitted to not liking to be around people period. His attendance record while at work was good, but I find it hard to believe he would have a good excuse for missing work when you only worked there for three months anyway. He expresses to continue his education, but is just holding out to find out if he can get a job or not. The more I learned from Applicant 1, in the interview, I feel our company has no use for him on the training program.

If we were conducting descriptive research, we might speculate that this student relies too heavily on speaking skills when dictating. The lack of parallelism, inaccurate pronoun reference, inappropriate tense switches, and vocabulary related errors are characteristic of oral discourse. But our speculation would be somewhat faulty. Speech is seldom so elliptical or marked by such an odd mixture of stilted and casual diction. If we were collecting data from a single group of students who had been taught only the technical process of dictation, which is in fact the kind of training this student had received, we might infer that she was a poor writer. Even though she operated dictation equipment successfully, she produced an illogical, ungrammatical communication. But our inference would again be somewhat faulty. In fact, the student, a good writer, earned a B in the business writing class. Because we conducted a true experiment, however, we can conclude with confidence that this student from the control group would benefit from learning the composing process of dictation in addition to the technical process. By conducting true experiments, we not only increase our knowledge of related research in composition and research methodology but more importantly we can test the effects of our planning and teaching through systematic evaluation. Conducting true experiments in composition accomplishes double duty in our classrooms by creating a learning environment for our students and for our profession.